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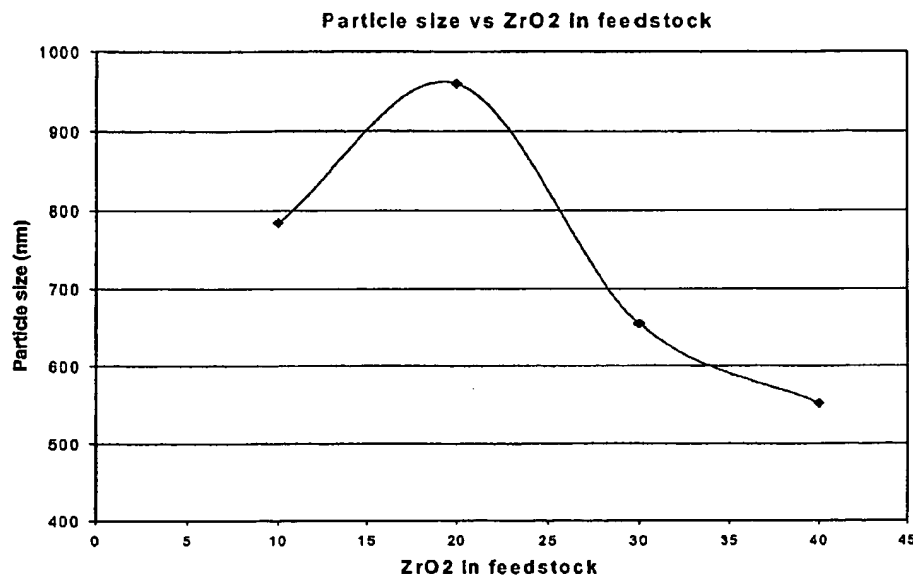
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[Continued on next page]

(54) Title: SPHERICAL NANO-COMPOSITE POWDER AND A METHOD OF PREPARING THE SAME



(57) **Abstract:** The present invention provides a composition and method of producing nano-composite powder consisting essentially of hydroxyapatite(HA) and zirconium oxide (ZrO<sub>2</sub>). The method comprises the steps of reacting orthophosphoric acid with calcium hydroxide to form a HA suspension, adding ZrO<sub>2</sub> suspension to the HA suspension to form a composite feedstock, and subjecting the composite feedstock to Radio Frequency (RF) Plasma Spraying to form the nano-composite powder. Quantity of the zirconium oxide suspension added is in the range of 10 to 40 weight % of the composite feedstock. The nano-composite powder comprises 60-90wt% calcium hydroxyapatite, 10-40wt% zirconium oxide and traces of calcium phosphate.

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